

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

A. IDENTIFICATION PAGE

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Inventors: Uwe Hauf, Henry Kunze and Ferdinand Wiener

For: Treatment Unit for the Wet-Chemical Electrolytic Treatment of Flat Workpieces

Examiner: Sylvia MacArthur

Art Unit: 1716

Atty Doc. No.: 084-06

APPEAL BRIEF

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C. REAL PARTY IN INTEREST

The real party in interest is Atotech Deutschland GmbH, a corporation of Germany having a place of business at Erasmusstrasse 20, Berlin GERMANY, the Assignee of this application and of the invention to which it relates.

D. RELATED APPEALS AND INTERFERENCES

None

E. STATUS OF CLAIMS

This Appeal is with respect to claims 1-6, 9-24 and 26, which have been Finally Rejected. The application was originally filed with a preliminary amendment, on May 31, 2006, which preliminary amendment contained 22 claims.

In a response to an Official Action of September 8, 2008, an amendment was filed October 21, 2008, amending some of the originally filed claims, and adding new claims 23 and 24. In response to a Final Rejection of February 6, 2009, an RCE was filed November 6, 2009 with an amendment amending some of the claims and adding new claims 25-27.

On May 12, 2010, after a Non-Final Rejection, the claims were amended as they currently appear, with claims 7, 8 and 25 being cancelled. That amendment has been entered, and the retained claims 1-6, 9-24 and 26, as they appear in the amendment of May 12, 2010, are the claims that are finally rejected and which are the claims being appealed.

F. STATUS OF AMENDMENTS

The amendment of May 12, 2010, containing the claims as they now appear and as they are now being appealed, was entered in the Final Rejection of July 22, 2010.

This Appeal is proceeding with claims 1-6, 9-24 and 26, as amended pursuant to the Amendment of May 12, 2010.

G. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1

Independent claim 1 is directed to a treatment unit for the wet-chemical or electrolytic treatment of flat workpieces, comprising conveying members for transporting the workpieces on a conveying path (p 1 L 4-7; Fig. 11) and treatment devices (p 6 L 28-p 7 L 18; Figs. 10 and 11) for the workpieces characterized in that the treatment unit further comprises carrier elements (p 1 L 22; 4, 5 of Figs. 1 and 2) with recesses (p 2 L 3-5; 21 of Fig. 2), the carrier elements being oriented to be parallel to the conveying path and wherein all of the recesses have the same dimensions and shapes (p 5 L 18-24; Fig. 2) or wherein a few differently configured groups of recesses are provided in the carrier elements, with all recesses of one group of recesses having the same dimensions and shapes (p 5 L 18-24; Fig. 2) and at least one module system (p 17 L 9-19; Fig. 10), each one serving for carrying or securing at least one treatment device (p 17 L 11-12; 16 and 17 of Fig. 10), said module system comprising insertion elements (p 17 L 20-22; 26 of Figs. 10 and 11), said insertion elements being configured such that they are fitted into the recesses of the carrier elements (p 4 L 12-14; 4, 5 of Figs. 1, 2 and 11), characterized in that at least one of the insertion elements carry or secure either at least one treatment device (p 4 L 14-20; Figs. 10 and 11; p 17 L 9-12) or an ensemble of at least one conveying member and at least one treatment device (p 4 L 14-20; 16 and 17 of Fig. 11; p 5 L 29-33; p 11 L 23-27); characterized in that at least one treatment device is any of flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers; and/or insoluble anodes (p 7 L 6-14; Figs. 10 and 11).

Independent Claim 23

Independent claim 23 is directed to a treatment unit for treatment of flat workpieces through any one of wet-chemical treatment and electrolytic treatment (p 1 L 4-7; Figs. 10 and 11), and comprises conveying means for transporting the workpieces in the unit on a conveying path (p 1 L 8-25; Figs. 1 and 11) and treatment devices for the workpieces (p 6 L 28-p 7 L 18 Figs. 10 and 11), characterized in that the treatment unit further comprises carrier elements (p 1 L 22; 4 and 5 of Figs. 1 and 2) with recesses (p 2 L 3-5; 21 of Fig. 2) with said carrier elements being oriented to be parallel to the conveying path (p 5 L 18-24; Fig. 2) and wherein a plurality of the recesses comprise at least one group (p 5 L 21-24) of recesses; wherein all of the recesses in each one of the at

least one group of recesses have the same dimensions and shapes (p L 18-24; Fig. 2); and at least one module system in the treatment unit (p 17 L 9-19; Fig. 10); the at least one module system comprising means (p 4 L 14-20; Figs. 10 and 11; p 17 L 9-12) for effecting any one of the carrying of and the securing of the treatment devices, with the module system comprising insertion elements (p 17 L 20-22; 26 of Figs. 10 and 11); with the insertion elements being configured such that they are fitted into the recesses of the carrier elements (p 4 L 12-14; Fig. 11); characterized in that at least one of the insertion elements carries or secures any one of at least one treatment device and an ensemble of at least one conveying member and at least one treatment device (p 4 L 14-20; Figs. 10 and 11; p 5 L 29-33; p 11 L 23-27); characterized in that the at least one treatment device is any one of flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble anodes (p 7 L 6-14; Figs. 10 and 11).

Independent Claim 24

Independent claim 24 is directed to a treatment unit for the treatment of flat workpieces through at least one of wet-chemical treatment and electrolytic treatment (p 1 L 4-7; Figs. 10 and 11) and comprises conveying members for transporting the workpieces on a conveying path (p 1 L 8-25; Figs. 1 and 11) and treatment devices for the workpieces; characterized in that the treatment unit further comprises carrier elements (p 1 L 22; 4 and 5 of Figs. 1 and 2) with recesses (p 2 L 3-5; 21 of Fig. 2); with said carrier elements being oriented to be parallel to the conveying path (p 5 L 19-24; Fig. 2) and wherein a plurality of the recesses comprise at least one group of recesses (p 5 L 21-24); wherein all of the recesses in each one of the at least one group of recesses have the same dimensions and shapes (p 5 L 18-24; Fig. 2); and at least one module system in the treatment unit (p 12 L 9-19; Fig. 10); with the at least one module system comprising means (p 4 L 14-20; p 17 L 9-12; Figs. 10 and 11) for effecting at least one of the carrying of and the securing of the treatment devices; said module system comprising insertion elements (p 17 L 20-22; 26 of Fig. 10 and 11); with the insertion elements being configured such that they are fitted into the recesses of the carrier elements (p 4 L 12-14; Fig. 11); characterized in that at least one of the insertion elements carries or secures at least one of at least one treatment device and an ensemble of at least one conveying member and at least one treatment device (p 4 L 14-20; Figs. 10 and 11; p 5 L 29-33; p 11 L 23-27); characterized in that said at least one treatment device is any of flow

nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble anodes (p 7 L 6-14; Figs. 10 and 11).

Independent Claim 26

Independent claim 26 is directed to a treatment unit for the wet-chemical or electrolytic treatment of flat workpieces (p 1 L 4-7; Figs. 10 and 11) comprising conveying members for transporting the workpieces on a conveying path (p 1 L 8-21) and treatment devices for the workpieces characterized in that the treatment unit further comprises carrier elements (p 1 L 22; 4 and 5 of Figs. 1-2) with recesses (p 2 L 3-5; 21 of Fig. 2) with the carrier elements being oriented to be parallel to the conveying path (p 5 L 18-24; Fig. 2) and wherein all of the recesses have the same dimensions and shapes or wherein a few differently configured groups of recesses are provided in the carrier elements, with all of the recesses of one group of recesses having the same dimensions and shapes (p 5 L 18-24) and with at least one module system, each one serving for carrying or securing at least one treatment device (p 4 L 14-20; p 17 L 9-12; Figs. 10 and 11), with the module system comprising insertion elements (p 17 L 20-22; 26 of Figs. 10 and 11), with the insertion elements being configured such that they are fitted into the recesses of the carrier elements (p 4 L 12-14; Fig. 11), characterized in that at least one of the insertion elements carry or secure at least one treatment device (p 4 L 14-20; Figs. 10 and 11; p 5 L 29-33; p 11 L 23-27); characterized in that the at least one treatment device is any of flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers; and/or insoluble nozzles (p 7 L 6-14; Figs. 10 and 11).

Independent claim 1 has at least one insertion element that carries or secures at least one treatment device or an ensemble of at least one conveying member and at least one treatment device.

Independent claim 23 is somewhat similar, in that the at least one insertion element carries or secures either at least one treatment device or an ensemble of at least one conveying member and at least one treatment device.

Independent claim 24 is somewhat similar to each of claims 1 and 23, except that the at least one insertion element can carry or secure one or more of the at least one treatment device and/or an ensemble of at least one conveying member and at least one treatment device.

Independent claim 26 is somewhat like independent claims 1, 23 and 24, except that the at least one insertion element carries or secures at least one treatment device. While it is broad enough to cover the insertion element carrying or securing an ensemble of a treatment device and conveyor members, the “ensemble” is not specifically mentioned in claim 26.

Dependent claims 2-6 and 9-22 each depend from or include all of the limitations of one of independent claims 1 and 26 and recite various mounting and/or driving features, and are not separately argued herein.

H. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether the rejection of claims 1-6, 9-24 and 26 under 35 §U.S.C. 103(a) as being unpatentable over Hennington et al EP 0959153 is reversible error, where all of the claims require some specific features disclosed nowhere in, nor are they obvious from, Hennington et al ‘153.
2. Whether the Examiner erred in rejecting the secondary evidence in support of non-obviousness of the invention and whether such rejection of the secondary evidence is reversible error.
3. Whether the rejection of claims 5 and 11-19 over Hennington et al in view of secondary references under 35 U.S.C. §103 is reversible error, where none of the secondary references address in any respect the deficiencies of Hennington et al, nor do they overcome the deficiencies of Hennington et al addressed in H 1 above.

I. ARGUMENT:

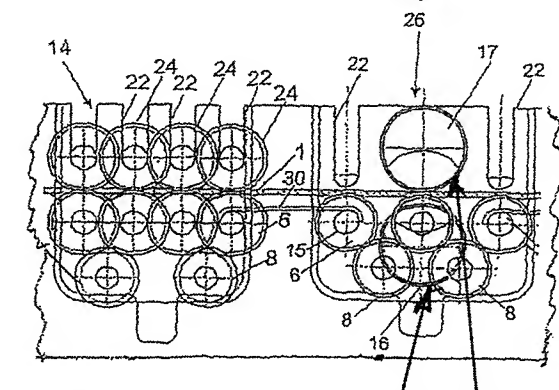
1. **Whether The Rejection Of Claims 1-6, 9-24 And 26 Under 35 U.S.C. 103 §(a) As Being Unpatentable Over Hennington et al EP 0959153 Is Reversible Error, Where All Of The Claims Require Some Specific Features Disclosed Nowhere In, Nor Are They Obvious, From Hennington e al ‘153.**
 - a. **The Examiner Fails To Establish A Prima Facia Case; To The Contrary, The Second Step Of The *Graham V. Deere* Analysis Is Missing In That The Examiner Misses The Differences Between The Claimed Invention And The Prior Art.**

All of Appellants’ claims require that at least one insertion element 26 carry or secure at least one **treatment device 16, 17**. See the portion of Appellants’ Fig. 11

reproduced below. The Examiner rejects all of the claims (1-6, 9-24 and 26) under §103 over Henington et al '153.

The Examiner relies upon the apparatus 24 of Henington et al as being the insertion element (see the Final Rejection of July 22, 2010, page 3 paragraph 3, line 6). Apparatus 24 is shown in Henington et al's Figs. 1, 7A and 7B. A portion of Henington et al's Fig. 1 is reproduced below.

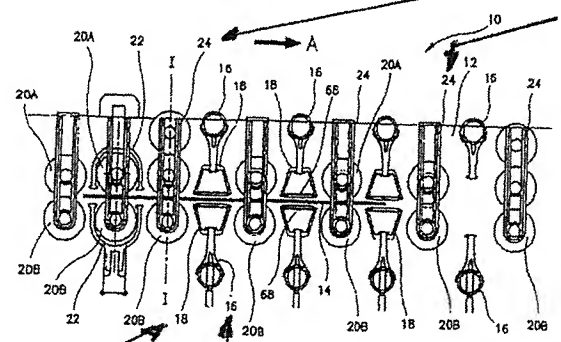
Appellants' insertion elements 26



Appellants' treatment devices 16 and 17 are Carried by insertion elements 26

Appellants' Fig. 11

Henington's insertion elements 24



Henington's treatment devices 16, 18 are **not** carried by insertion elements 24

Henington Fig. 1

It is incontrovertible that Henington et al's treatment devices 16, 18 are **not** carried or secured by Henington et al's insertion elements 24.

The Examiner clearly understands that Appellants have forcefully asserted that the missing element of Henington et al presents a technical difference:

Applicant argues in the Remarks that the prior art of Henington et al (EP 0959153) fails to teach a) the treatment devices of Henington et al have not insertion elements to carry or secure them, ...(see Final Rejection of July 22, 2010, page 2, paragraph 1 lines 3-5).

Yet, nowhere in the Final Rejection does the Examiner respond to or otherwise deal with this missing element that provides a technical difference between the prior art and Appellants' invention.

In a later Advisory Action of October 18, 2010, the Examiner again recognizes the technical distinction Appellants are making relative to Henington et al, but then goes on to misstate that Henington et al's insertion elements have treatment devices, 16, 18:

Applicant argues that Henington et al (EP 0959153) fails to teach an insertion elements (sic) carry or secure at least one treatment device or an ensemble of at least one conveying member and at least one treatment device. Henington et al teaches electrolytic treatment of flat workpieces (PCBs) wherein insertion elements 24 with treatment devices (fluid delivery apparatus(nozzles 16, 18)).

Henington et al's insertion elements are not "with treatment devices" as is misstated by the Examiner. The treatment devices 16, 18 of Henington et al are carried between the horizontal walls of the tank 12 of Henington et al, as is clearly shown in Fig. 1 of Henington et al. The treatment devices 16, 18 of Henington et al are not in any respect carried or secured by the insertion elements 24 of Henington et al.

Additionally, all of the claims also require that at least one insertion element that carries or secures at least one treatment device be fitted into a recess 21 of the carrier elements 4, 5.

While Henington et al's insertion elements 24 are fitted into recesses in Henington et al's horizontal side rails, those insertion elements do not carry or secure any of Henington et al's treatment devices 16, 17.

While no prima facie case of obviousness has been provided by the Examiner, as required by *In re Glaug*, 283 F.3d. 1335, 1338 (Fed. Cir. 2002), the evidence of record (Declaration of Ewe Hauf of May 12, 2010, paragraphs 7 and 8) establishes that Henington et al's treatment devices have **no** insertion elements that carry or secure them or that its treatment devices fit into any recess in its carrier elements. The elements 20A, 20B, and 22 of Henington et al are not treatment devices and are not flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble nozzles; they are rollers (20A, 20B) or covering apparatus 22.

It is very important to Appellants' invention that the treatment devices 16, 17 are carried or secured by the insertion elements, because, when it is desired to replace one treatment device for another treatment device, to provide a different treatment, it is simply a matter of taking the insertion element that carries a particular treatment device out of the recess and replacing it with another insertion element that carries a different

treatment device. This allows the ready replacement of treatment devices without requiring a reconstruction of the carrier wall, which can save vast amounts of time in changing the apparatus from the ability to provide one treatment from one treatment device, to providing any number of different treatments from selected different treatment devices by a quick and easy replacement of one insertion element for another, without requiring re-working of an entire machine.

The evidence of record fully explains the non-obvious advantage of carrying the treatment units of Appellants' invention in the insertion elements that fit into the recesses. The Hauf Declaration states:

11. In the present invention, there is a non-obvious advantage for the construction of the treatment units and the ease of retrofitting the treatment units in that their treatment devices can be easily exchanged without it being necessary to re-construct or modify the carrier elements or carrier walls. This results in shorter delivery times and higher flexibility for future applications of the treatment units. The present invention permits ready utilization of different treatment devices without requiring major expense and without having the carrier elements needing to be replaced each time a change has to be performed in the treatment unit. This is different than what would appear to be necessary from the Henington et al disclosure, in that the Henington et al apparatus would seem to necessarily require reconstruction every time a unit is to be re-adapted from, for example, handling a thicker material to handling a thinner, more flexible material. Such reconstruction would seem to result in a delay in the manufacturing process and impose additional expense for reconstruction of the treatment unit and in the process. In this regard, relative to Henington et al, the present invention presents a treatment unit which produces a new and unexpected result.

Paragraph 12 of the Hauf Declaration goes on to state:

12. With the present invention, it is only necessary that the insertion elements be selected for whatever specific type of treatment is desired for the workpiece. This invention therefore makes possible a standardization of the mounting of different treatment units that offers great flexibility in construction, manufacturing and retrofitting of the treatment devices, because the treatment devices carried by insertion elements can readily be replaced depending upon which treatment features are desired, depending upon the workpieces that are being treated.

Accordingly, while no prima facie case of obviousness has been made out by the Examiner, the evidence of record establishes that no prima facie case could have been made out, because of the deficiencies of the Henington et al disclosure. The differences

between the prior art and the claims at issue were not ascertained by the Examiner as required by *Graham v. Deere*, 383 U.S. 1, 148 U.S.P.Q. 459, 467 (1966).

b. The Examiner Provides No Articulated Rationale For A Finding Of Obviousness, As The Supreme Court In *KSR* Requires.

The Final Rejection of July 22, 2010 is silent as to any articulated rationale for the Examiner's conclusion of obviousness.

The Post-Final Rejection Advisory Action of October 18, 2010 is silent as to any articulated rationale for the Examiner's conclusion of obviousness.

However, the evidence of record establishes why there could not be an articulated rationale for it being obvious to arrive at the present invention from Henington et al.

In paragraph 13 of the Hauf Declaration, it is established why a skilled person in this art, with Henington et al before them, would not have arrived at the present invention:

13. Furthermore, a skilled person knowing about the insertion elements of Henington et al would not have contemplated having the treatment devices of the units be carried or secured by insertion elements. This is because, insertion elements are used for carrying transport elements or conveying members like rollers with axles, since by turning of the axles in their bearings the bearings will be worn out after some time. By using the insertion elements as the bearings instead of the carrier elements, only the insertion elements have to be replaced instead of the complete carrier elements. But this benefit will not be achieved if treatment devices were carried or secured by the insertion elements. This is because carrying of the treatment devices does not cause any wear and tear since they do not rotate. So before the invention was made there was no motivation or hint to carry or secure the treatment devices by insertion elements as shown by the invention.

The rejection is absent any articulated rationale whatever, contrary to the requirement of *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 401 (2007).

c. In Other Respects, The Final Rejection Completely Misses The Point.

At the top of page 4 of the Final Rejection of July 22, 2010, the Examiner states:

However, applicant has not established the criticality of the need for a plurality of conveying members. The examiner interprets this is a matter of duplication of parts. According to *In re Japikse*, 181 F. 2d 1019, 86 USPQ 70 (CCPA 1950) *In re Kuhle*, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975), the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

This comment is applied with respect to all of the claims, including the independent claims, which do not address insertion elements carrying pluralities of conveying members. These comments of the Examiner are simply inapplicable to the claims.

In the Final Rejection of July 22, 2010, the Examiner goes on to state:

The motivation to provide a plurality of conveying members it to increase the throughput. Thus, it would have been obvious for one of ordinary skill in the art to duplicate the conveying members of Henington et al in order to increase the throughput.

Not only are these comments inapplicable to the claims that are rejected, these statements are simply wrong.

If one were motivated to modify Henington et al for the purpose of increasing the throughput of printed circuit boards being treated, that goal could not be realized by providing a plurality of rollers where Henington et al uses a single roller, in any event. That is because the printed circuit board 14 of Henington et al moves a constant speed (column 6 line 35), with both axles driven by a motor (column 11 lines 1-3 and Fig. 7D). The number of rollers used can have no effect on throughput. Only by speeding up the rollers can Henington et al increase throughput. Thus, if it is considered to be obvious to try to increase throughput, in no way can such be accomplished by providing a plurality of rollers, in any event.

2. Whether The Examiner Erred In Rejecting The Secondary Evidence In Support Of Non-Obviousness Of The Invention And Whether Such Rejection Of The Secondary Evidence Is Reversible Error.

a. The Evidence Of Commercial Success Supports Unobviousness Of The Invention And Patentability.

In the Hauf Declaration of May 12, 2010, the commercial success of the invention was set forth, factually, in numbered paragraph 16, and in the Exhibit B referenced therein. Such evidence was as follows:

16. The unique structure of the UNIPLATE treatment unit of the invention sold by my company has yielded unexpected very large commercial success, as is shown in a turnover sheet vs. time sheet, copy enclosed as Exhibit B. This sheet shows the worldwide sales turnover in a period from 2001 to 2009. The turnover in early 2004, as shown in Exhibit B, was set to 200%, which was when sales began of UNIPLATE units having this invention in them. Thereafter, apart from a decline in 2009 due to the worldwide economic downturn, the turnover steadily increased to about 540% relative

to 2001. This rise in turnover is parallel to the commercial use of the invention in UNIPLATE treatment units since its launch in 2004 until today. There was no price reduction for the treatment units in the period 2004-2008, relative to the pre-2004 period that accounts for the increase in sales from 2004-2008. Instead, there is a strong indication of the relation between the successful sales of the treatment units and the incorporation of this new invention and shows its great acceptance by our customers.

In response to such evidence, the Examiner correctly noted that a nexus must be established between the commercial success and the claimed invention. However, the Examiner did not determine that there was no such “nexus”.

In fact, the nexus was fully established in numbered paragraph 14 of the Hauf Declaration, wherein more than 90% of the units sold since the introduction of the invention to the public had the **“construction of the invention comprising treatment devices which are carried or secured by insertion elements which in turn are held by carrier elements.”**

14. Conveyorized treatment units for the wet-chemical treatment of flat work pieces are sold by my company and its affiliates under the trade name UNIPLATE. Most of these units, i.e., more than 90 % of all UNIPLATE units sold since 2004 have the construction of the invention comprising treatment devices which are carried or secured by insertion elements which in turn are held by carrier elements.

The Examiner apparently overlooked the evidence that established the required “nexus”.

In denying the evidence of commercial success, the Examiner was also wrong as to the presence of evidence concerning what the treatment devices comprise. The Examiner stated:

Specifically, upon reviewing applicant’s declaration it was noted that no evidence concerning what the treatment devices comprise. (Final Rejection of July 22, 2010 p 3 L 4-5)

But the Hauf Declaration in its numbered paragraph 8 specifically addresses those treatment devices, using the exact language of independent claims 1, 23, 24 and 26:

8. All of the claims of the present application require, additionally, that the at least one module system that includes treatment device(s) be flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble anodes, and that the claims comprise insertion elements fitted into recesses of the carrier elements. Again, Henington et al has no disclosure that its

treatment device fits into any recess of its carrier elements or even that its treatment devices 16 are in any respect carried by insertion elements.

The Examiner apparently missed the evidence that was presented in numbered paragraph 8 of the Hauf Declaration.

The Examiner went on to criticize the evidence of commercial success in other respects:

Also, no comparisons with sales of other devices were discussed. Additionally, no indications of prior sales or figures were included. Furthermore, no indications of choices available to customers were discussed. (Final Rejection of July 22, 2010 p 3 L 6-7)

As to comparisons with sales of other devices, the Examiner is simply wrong. In numbered paragraphs 14 and 16 of the Hauf Declaration, it is clear that the comparison that was made, was of units prior to 2004 and units since 2004, the latter having the construction of the invention that has been discussed throughout. Thus, the comparison that was made was between units sold by the Assignee after introduction of the invention, with units of the Assignee prior to the introduction of the invention. Aside from those facts, the Hauf Declaration opined that the commercial acceptance by customers in the field was “extraordinary”, and was because of those features of the invention discussed in numbered paragraphs 7 and 8 of the Declaration:

17. Accordingly, in my opinion, based upon my experience in the field to which both Henington et al and the present invention relate, and based upon the extraordinary commercial acceptance of this invention by customers in this field, which extraordinary acceptance is because of those features of this invention discussed above in numbered paragraphs 7 and 8, the present invention is a non-obvious improvement over the prior art, most particularly the Henington et al prior art.

Thus, the Hauf Declaration did provide comparisons of sales with other devices, and indications of prior sales or figures.

It is not possible in every case to include every conceivable parameter that might be theoretically available for establishing the commercial success of an invention. For example, while in some cases comparisons of sales with competitive units of other companies might be helpful, it is not possible in all cases to provide such evidence, generally because competitors do not necessarily share such sales information with each other. However, that is not a reason for disregarding evidence that is available that

establishes a level of commercial success for an invention, as was addressed in *Stratoflex Inc. v. Aeroquip Corp.* 713 F.2d. 1530, 218 U.S.P.Q. 871, 879 (Fed. Cir. 1983):

It is jurisprudentially inappropriate to disregard any relevant evidence on any issue in any case, patent cases included. Thus evidence rising out of the so-called “secondary considerations” must always when present be considered en route to a determination of obviousness. In *re Sernaker*, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983) citing *In re Fielder and Underwood*, 471 F.2d 640, 176 USPQ 300 (CCPA 1973), see *In re Magelia et al.*, 470 F.2d 1380, 1384, 176 USPQ 305, 307 (CCPA 1973) (evidence bearing on issue of nonobviousness “is never of ‘no moment’, is always to be considered and accorded whatever weight it may have.”) Indeed, evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.

Appellants’ commercial success evidence should not be disregarded.

b. In This Case, There Is Also Other Evidence Of Secondary Indicia Of Non-Obviousness, In The Form Of Customer Acceptance.

In paragraph 15 of the Hauf Declaration, there is evidence presented of customer acceptance of the invention:

15. I frequently received a very positive feedback from our customers for the short delivery time and great flexibility, especially for future applications, of our UNIPLATE treatment equipment based on this invention. Our customers commended the unique construction of our UNIPLATE treatment units having the construction of the invention because of the benefit of easy adaptation if the unit is to be adapted from one processing condition to another so that short idle times and hence a much higher throughput of the units is achieved than with conventional units like that of the Henington et al. apparatus.

That acceptance is directly related to the benefits of the invention; namely the easy adaptation of the unit for one processing condition to another, so that short idle times enhance a much higher throughput of the units is achieved as compared with convention units like Henington et al. While there are factual limitations on that evidence, such evidence is consistent with the increase in sales after introduction of the invention in 2004, as is addressed in paragraph 14 and 16 references above, and is further evidence in support of the non-obviousness of the invention.

It is jurisprudentially inappropriate to disregard any relevant evidence on any issue in any case, patent cases included. *Stratoflex Inc. v. Aeroquip Corp.* (supra)

3. Whether The Rejection Of Claims 5 And 11-19 Over Henington et al In View Of Secondary References Under 35 U.S.C. §103 Is Reversible Error, Where None Of The Secondary References Address In Any Respect The Deficiencies Of Henington et al, Nor Do They Overcome The Deficiencies Of Henington et al Addressed In H 1 Above.

Claim 5 is rejected under Section 103 over Henington et al in view of Pender 4,607,590. Pender is totally absent any disclosure of the features that are argued in section I 1 above, as being absent from Henington et al. Thus, Pender adds nothing to the rejection of any of the independent claims, and therefore, whether or not Pender is combined with Henington et al, the deficiencies of the combinations stand.

Likewise, claims 11-19 are rejected over a combination of Henington et al and Hass et al DE 4035932 under Section 103. The deficiencies of the combination of Henington et al and Hass et al, relative to the features that are missing from Henington et al as argued in Section I 1 above remain, whether or not Hass et al is combined with Henington et al.

Accordingly, the rejections of dependent claims 5 and 11-19 suffer from all of the deficiencies argued above in Section I 1 hereof.

J. CONCLUSION

The rejections of all of claims 1-6, 9-24 and 26 under Section 103 are in error and should be reversed as a matter of fact and as a matter of law.

Respectfully submitted,

/JFM/

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THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES ASSOCIATED WITH THIS COMMUNICATION, OR CREDIT ANY OVERPAYMENT, TO PAUL & PAUL DEPOSIT ACCOUNT NO. 16-0750.

K. CLAIMS APPENDIX

1. A treatment unit for the wet-chemical or electrolytic treatment of flat workpieces, comprising conveying members for transporting the workpieces in the unit on a conveying path, and treatment devices for the workpieces characterized in that the treatment unit further comprises
 - a) carrier elements (4, 5) with recesses (21), said carrier elements being oriented to be parallel to the conveying path and wherein all the recesses (21) have the same dimensions and shapes, or wherein a few differently configured groups of recesses are provided in the carrier elements (4, 5), all recesses (21) of one group of recesses (21) having the same dimensions and shapes, and
 - b) at least one module system, each one serving for carrying or securing at least one treatment device, said module system comprising insertion elements (26), said insertion elements (26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5),
characterized in that at least one of the insertion elements (26) carry or secure either at least one treatment device or an ensemble of at least one conveying member and at least one treatment device (16, 17);
 - c) characterized in that said at least one treatment device (16, 17) is any of:
 - i flow nozzles;
 - ii jet nozzles;
 - iii fan nozzles;
 - iv ultrasonic transducers; and/or
 - v insoluble anodes.
2. The treatment unit according to any one of claims 1 and 26, characterized in that the insertion elements (26) are secured to the carrier elements by any of screws, eccentric clamps and rocker levers.
3. The treatment unit according to any one of claims 1 and 26, characterized in that the conveying members are carried on both sides of the conveying path, with said conveying members extending in a transverse or substantially transverse direction relative to the conveying path.

4. The treatment unit according to any one of claims 1 and 26 characterized in that the conveying members are conveyor rolls and/or conveyor wheels or conveyor balls and/or spiral-shaped conveying members, the conveyor wheels or conveyor balls being mounted on axles.
5. The treatment unit according to claim 4, characterized in that those conveyor wheels or conveyor balls have different axles and are offset relative to each other and in that the axles are arranged so close together that the conveyor wheels or conveyor balls overlap as viewed in the direction of the axle.
6. The treatment unit according to any one of claims 1 and 26 characterized in that the conveying path extends in a substantially horizontal plane.
9. The treatment unit according to any one of claims 1 and 26, characterized in that the insertion elements (26) comprise connectors for supplying the treatment devices (16, 17) with treatment media or with power.
10. The treatment unit according to any one of claims 1 and 26 characterized in that the insertion elements (26) comprise bores (15) and/or slots (22) and/or long holes for carrying the conveying members said slots and long holes extending substantially normal to the conveying path.
11. The treatment unit according to any one of claims 1 and 26 characterized in that it further comprises a drive shaft (25) that is oriented to be parallel to at least one of the carrier elements (4, 5) outside of the conveying path and that drives the conveying members.
12. The treatment unit according to any one of claims 1 and 26 characterized in that the axles of the conveying members (6, 6', 6'', 7) protrude from that side of at least one of the insertion elements (26) that is turned away from the conveying path and that the axles are equipped with toothed wheels for transmitting the force to the conveying members.

13. The treatment unit according to claim 12, characterized in that the toothed wheels are at least one of deflector wheels (27, 27') and spur gears (9, 29, 29').
14. The treatment unit according to claim 13, characterized in that the axles of the conveying members comprise either a deflector wheel (27, 27') or a spur gear (9, 29, 29') or a combination consisting of deflector wheel (27, 27') and spur gear (9, 29, 29').
15. The treatment unit according to claim 13, characterized in that the deflector wheels (27, 27', 28) are any of bevel gears, worm-gears and helical gears.
16. The treatment unit according to claim 11, characterized in that the drive shaft (25) comprises deflector wheels (28) corresponding to and engaging the deflector wheels (27, 27') of the conveying members.
17. The treatment unit according to any one of claims 1 and 26 characterized in that, on that side of at least one of the insertion elements (26), that is turned away from the conveying path, the insertion elements (26) are provided with at least one translating spur gear (8, 8') for transmitting the force between two conveying members.
18. The treatment unit according to claim 13, characterized in that the spur gears (9, 29, 29') on the conveying members and the translating spur gears (8, 8') are arranged relative to each other and engage in such a manner that the direction of rotation of the spur gears (9, 29, 29') remains unchanged.
19. The treatment unit according to claim 13, characterized in that the spur gears (29, 29') comprise, in addition to a gear rim, a collar of a diameter smaller than the gear rim, thus making it possible to dispose the axles of the conveying members close to each other, the collar being formed either in front or behind the gear rim as viewed in the direction of the axle of the conveying members.
20. The treatment unit according to any one of claims 1 and 26 characterized in that the insertion elements are arranged in pairs.

21. The treatment unit according to any one of claims 1 and 26 characterized in that the insertion elements are fittingly slidable into the recesses (21) of the carrier elements (4, 5).

22. A method of using a treatment unit according to any one of claims 1 and 26 for treating flat workpieces in a horizontal conveyORIZED line.

23. A treatment unit for the treatment of flat workpieces through any one of:

- (i) wet-chemical treatment; and
- (ii) electrolytic treatment;

comprising conveying members for transporting the workpieces in the unit on a conveying path and treatment devices for the workpieces; characterized in that the treatment unit further comprises carrier elements (4, 5) with recesses (21); with said carrier elements being oriented to be parallel to the conveying path and wherein a plurality of the recesses comprise at least one group of recesses; wherein all of the recesses in each one of the at least one group of recesses have the same dimensions and shapes; and at least one module system in the treatment unit; the at least one module system comprising means for effecting any one of:

- (iii) the carrying of; and
- (iv) the securing of;
- (v) the treatment devices;

said module system comprising insertion elements (26); said insertion elements (26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5);

characterized in that at least one of the insertion elements (26) carries or secures any one of:

- (vi) at least one treatment device; and
- (vii) an ensemble of at least one conveying member and at least one treatment device (16, 17);
- (viii) characterized in that said at least one treatment device (16, 17) is any of:
 - (a) flow nozzles;

- (b) jet nozzles;
- (c) fan nozzles;
- (d) ultrasonic transducers; and/or
- (e) insoluble anodes.

24. A treatment unit for the treatment of flat workpieces through at least one of:

- (i) wet-chemical treatment; and
- (ii) electrolytic treatment;

comprising conveying members for transporting the workpieces in the unit on a conveying path and treatment devices for the workpieces; characterized in that the treatment unit further comprises carrier elements (4, 5) with recesses (21); with said carrier elements being oriented to be parallel to the conveying path and wherein a plurality of the recesses comprise at least one group of recesses; wherein all of the recesses in each one of the at least one group of recesses have the same dimensions and shapes; and at least one module system in the treatment unit; the at least one module system comprising means for effecting at least one of:

- (iii) the carrying of; and
- (iv) the securing of;
- (v) the treatment devices;

said module system comprising insertion elements (26); said insertion elements (26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5);

characterized in that at least one of the insertion elements (26) carries or secures at least one of:

- (vi) at least one treatment device;
- (vii) an ensemble of at least one conveying member and at least one treatment device (16,17);
- (viii) characterized in that said at least one treatment device (16, 17) is any of:
 - (a) flow nozzles;
 - (b) jet nozzles;
 - (c) fan nozzles;
 - (d) ultrasonic transducers; and/or

- (e) insoluble anodes.

26. A treatment unit for the wet-chemical or electrolytic treatment of flat workpieces, comprising conveying members for transporting the workpieces in the unit on a conveying path, and treatment devices for the workpieces characterized in that the treatment unit further comprises

- a) carrier elements (4, 5) with recesses (21), said carrier elements being oriented to be parallel to the conveying path and wherein all the recesses (21) have the same dimensions and shapes, or wherein a few differently configured groups of recesses are provided in the carrier elements (4, 5), all recesses (21) of one group of recesses (21) having the same dimensions and shapes, and

- b) at least one module system, each one serving for carrying or securing at least one treatment device, said module system comprising insertion elements (~~13, 14,~~ 26), said insertion elements (26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5),
characterized in that at least one of the insertion elements (26) carry or secure at least one treatment device (16, 17);

- c) characterized in that said at least one treatment device (16, 17) is any of:

- i flow nozzles;
- ii jet nozzles;
- iii fan nozzles;
- iv ultrasonic transducers; and/or
- v insoluble anodes.

L. EVIDENCE APPENDIX

Declaration Under 37 C.F.R. 1.132 of Uwe Hauf

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Serial No.: 10/581,353

Filed: May 31, 2006

For: **TREATMENT UNIT FOR THE WET-CHEMICAL ELECTROLYTIC
TREATMENT OF FLAT WORKPIECES**

Inventors: Uwe Hauf, Henry Kunze, and Ferdinand Wiener

Examiner: Sylvia MacArthur

Art Unit: 1792

Atty Doc. No.: 084-06

DECLARATION UNDER 37 C.F.R. 1.132

1. I, Uwe Hauf am one of the inventors of the present invention. I am with Atotech Deutschland GmbH, the Assignee of this patent application.
2. I have had 23 years of experience with wet chemical and electrolytic treatment of flat work pieces, included printed circuit boards and printed circuit film.
3. My educational background and experience is summarized in my curriculum vitae, copy attached as Exhibit A.
4. Because of my long and in-depth experience in the field of wet chemical and electrolytic treatment of flat work pieces, including in-depth familiarity with equipment in this field, I am considered to have significant expertise in this field. Further, because of the various management positions I have been in charge of I have a comprehensive competence in terms of business activities worldwide in this field.
5. I am very familiar with the present patent application, including its claims, and with the Henington et al European Patent Application EP 0959153A2 that has been used as a primary rejecting reference in this case. I am also familiar with the Shipley Company LLC, the assignee of the Henington et al document.
6. All of the claims of the present patent application require several significant features that have no counterpart in the disclosure of the Henington et al document.

7. All of the claims of the present patent application require a treatment unit comprising at least one module system that includes a treatment device (with or without at least one conveying member) and that comprises an insertion element fitted into recesses (21) of carrier elements (4, 5).

Henington et al has treatment devices 16, but (A) these treatment devices have no insertion elements that carry or secure them, and (B) Henington et al has no disclosure how these treatment devices are mounted in the apparatus, and (C) Henington et al has no disclosure that any treatment device 16 fits into any recess in the carrier elements of Henington et al.

8. All of the claims of the present application require, additionally, that the at least one module system that includes treatment device(s) be flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble anodes, and that the claims comprise insertion elements fitted into recesses of the carrier elements. Again, Henington et al has no disclosure that its treatment device fits into any recess of its carrier elements or even that its treatment devices 16 are in any respect carried by insertion elements.

9. The elements 20A, 20B and 22 (Fig.1, 5A, 5B, 5C) of Henington et al are not treatment devices and certainly are not flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble nozzles; they are rollers (20A, 20B) or covering apparatus 22.

10. Henington et al does not disclose in any respect that the fluid delivery apparatus 16, 18, Figs. 1, 3A, 3B, 3C, 3D, 3E, 4A and 4B could be or include insertion elements, or that any insertion element would carry or secure a treatment device. Henington et al's disclosure is silent as to how the fluid delivery apparatus 16 are mounted in Henington's electroplating apparatus.

11. In the present invention, there is a non-obvious advantage for the construction of the treatment units and the ease of retrofitting the treatment units in that their treatment devices can be easily exchanged without it being necessary to re-construct or modify the carrier elements or carrier walls. This results in shorter delivery times and higher flexibility for future applications of the treatment units. The present invention permits ready utilization of different treatment devices without requiring major expense and without having the carrier elements needing to be replaced each time a change has to be performed in the treatment unit. This is different than what would appear to be necessary from the Henington et al disclosure, in that the Henington et al apparatus would seem to necessarily require reconstruction every time a unit is to be re-adapted from, for example, handling a thicker material to handling a thinner, more flexible material. Such reconstruction would seem to result in a delay in the manufacturing process and impose additional

expense for reconstruction of the treatment unit and in the process. In this regard, relative to Henington et al, the present invention presents a treatment unit which produces a new and unexpected result.

12. With the present invention, it is only necessary that the insertion elements be selected for whatever specific type of treatment is desired for the workpiece. This invention therefore makes possible a standardization of the mounting of different treatment units that offers great flexibility in construction, manufacturing and retrofitting of the treatment devices, because the treatment devices carried by insertion elements can readily be replaced depending upon which treatment features are desired, depending upon the workpieces that are being treated.

13.. Furthermore, a skilled person knowing about the insertion elements of Henington et al would not have contemplated having the treatment devices of the units be carried or secured by insertion elements. This is because, insertion elements are used for carrying transport elements or conveying members like rollers with axles, since by turning of the axles in their bearings the bearings will be worn out after some time. By using the insertion elements as the bearings instead of the carrier elements, only the insertion elements have to be replaced instead of the complete carrier elements. But this benefit will not be achieved if treatment devices were carried or secured by the insertion elements. This is because carrying of the treatment devices does not cause any wear and tear since they do not rotate. So before the invention was made there was no motivation or hint to carry or secure the treatment devices by insertion elements as shown by the invention..

14. Conveyorized treatment units for the wet-chemical treatment of flat work pieces are sold by my company and its affiliates under the trade name UNIPLATE. Most of these units, i.e., more than 90 % of all UNIPLATE units sold since 2004 have the construction of the invention comprising treatment devices which are carried or secured by insertion elements which in turn are held by carrier elements.

15. I frequently received a very positive feedback from our customers for the short delivery time and great flexibility, especially for future applications, of our UNIPLATE treatment equipment based on this invention. Our customers commended the unique construction of our UNIPLATE treatment units having the construction of the invention because of the benefit of easy adaptation if the unit is to be adapted from one processing condition to another so that short idle times and hence a much higher throughput of the units is achieved than with conventional units like that of the Henington et al. apparatus.

Henington et al. apparatus.

16. The unique structure of the UNIPLATE treatment unit of the invention sold by my company has yielded very large commercial success, as is shown in a turnover sheet vs. time sheet, copy enclosed as Exhibit B. This sheet shows the worldwide sales turnover in a period from 2001 to 2009. The turnover in early 2004, as shown in Exhibit B, was set to 200%, which was when sales began of UNIPLATE units having this invention in them. Thereafter, apart from a decline in 2009 due to the worldwide economic downturn, the turnover steadily increased to about 540% relative to 2001. This rise in turnover is parallel to the commercial use of the invention in UNIPLATE treatment units since its launch in 2004 until today. There was no price reduction for the treatment units in the period 2004-2008, relative to the pre-2004 period that accounts for the increase in sales from 2004-2008. Instead, there is a strong indication of the relation between the successful sales of the treatment units and the incorporation of this new invention and shows its great acceptance by our customers.

17. Accordingly, in my opinion, based upon my experience in the field to which both Henington et al and the present invention relate, and based upon the extraordinary commercial acceptance of this invention by customers in this field, which extraordinary acceptance is because of those features of this invention discussed above in numbered paragraphs 7 and 8, the present invention is a non-obvious improvement over the prior art, most particularly the Hennington et al prior art.

18. While under German law there is a procedure for remunerating inventors for patentable inventions, I make this Declaration, not because of that procedure, but based upon the facts set forth in the paragraphs hereof, as I know them to be.

19. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 12th 2010
Date

Signature

Name: Uwe Häuf

Title: Vice President Electronics

EXHIBIT A



Company : Atotech Deutschland GmbH

Name : Uwe Hauf

Current Function : Vice President Electronics

Sex : Male

Date of Birth : November 29th , 1958

Nationality: German

Languages: German (mother language)
English (fluent)
French (basics)

Date of Employment : February, 1987

Marital Status : Married, 4 children

07/2005 – today

Vice President Electronics

- * Responsibility for worldwide business strategy
- * Definition of development targets and guidelines
- * Responsibility for 70 MEUR Equipment business and development
- * Turnover: 380 MEUR, thereof equipment business 90 MEUR; RO: 100MEUR; 65 MEUR structural costs, thereof 20 MEUR R&D
- * 6 major business units
- * 370 employees; 3 global R&D centers (Germany, China, Japan) and 12 Technical Centres around the world
- * 33 affiliates in as many countries in Europe, America, Far East

07/2003 – 06/2005

**Business Manager, Systems
Atotech Deutschland GmbH, Feucht / Germany**

- * Responsibility for Equipment Business of 70 MEUR
- * Structural Costs: 10.5 MEUR, thereof 3.5 MEUR R&D
- * 75 employees in Germany and 4 direct reports in USA
- * Additional responsibility for up to 250 external personal
- * Direct reporting line to Vice President Electronics

09/2001 – 06/2003

**Systems Development & Sales Manager
Atotech Deutschland GmbH, Feucht / Germany**

- * Responsibility for system sales and sales support (50 MEUR)
- * Initiation and Coordination of all System Development activities
- * Structural Costs: 5,0 MEUR, incl. Development Budget 3,5 MEUR
- * 18 employees in Germany and 4 direct reports in USA

08/1997 – 08/2001

**R&D Manager for Surface Treatment Technology
Atotech USA Corp., State College, PA / USA**

- * Responsibility for all R&D activities of the Business Technology Team
- * Heading of a group of 12 Development Chemists
- * Development Budget: 1,5 M\$ (US)
- * Responsibility for novel equipment development for surface treatment
- * Responsibility for the establishment of a new Technology Centre

03/1994 - 07/1997

**Product Marketing Manager for PTH products
Atotech Deutschland GmbH, Stuttgart / Germany**

- * Responsibility for all Regional PTH Sales & Marketing Activities
- * Introduction of new PTH products to the German Region
- * Coordination of Implementation projects for new products
- * Training of local staff of new processes

02/1993 – 02/1994

**Development Manager
Atotech Deutschland GmbH, Berlin / Germany**

- * Head of Task Force: ICD Defects at IBM
- * Revision of conventional PTH chemistry
- * Development of new cleaner systems for PTH

11/1991 – 01/1993

**Project Manager Direct Plating
Schering AG, Stuttgart / Germany**

- * Head of Implementation Team
- * Improvement of polymer-based DP systems
- * Development of acidic permanganate systems
- * Customer projects: Loewe Opta / Blaupunkt

10/1988 – 10/1991

**Project Engineer for Horizontal PTH and Desmear Systems
Schering AG, Stuttgart / Germany**

- * Development & Improvement of Horizontal System Technology
- * Development & Test of a recycling system for Permanganate Solutions
- * Improvement of chemistry for horizontal application
- * 18 customer projects in Europe and Japan

02/1987 – 09/1988

**Technical Service EngineerProject
Schering AG, Stuttgart / Germany**

- * Service responsibility for 6 key customers
- * Member of Project Team for horizontal Equipment
- * Specialist for horizontal PTH and related processes

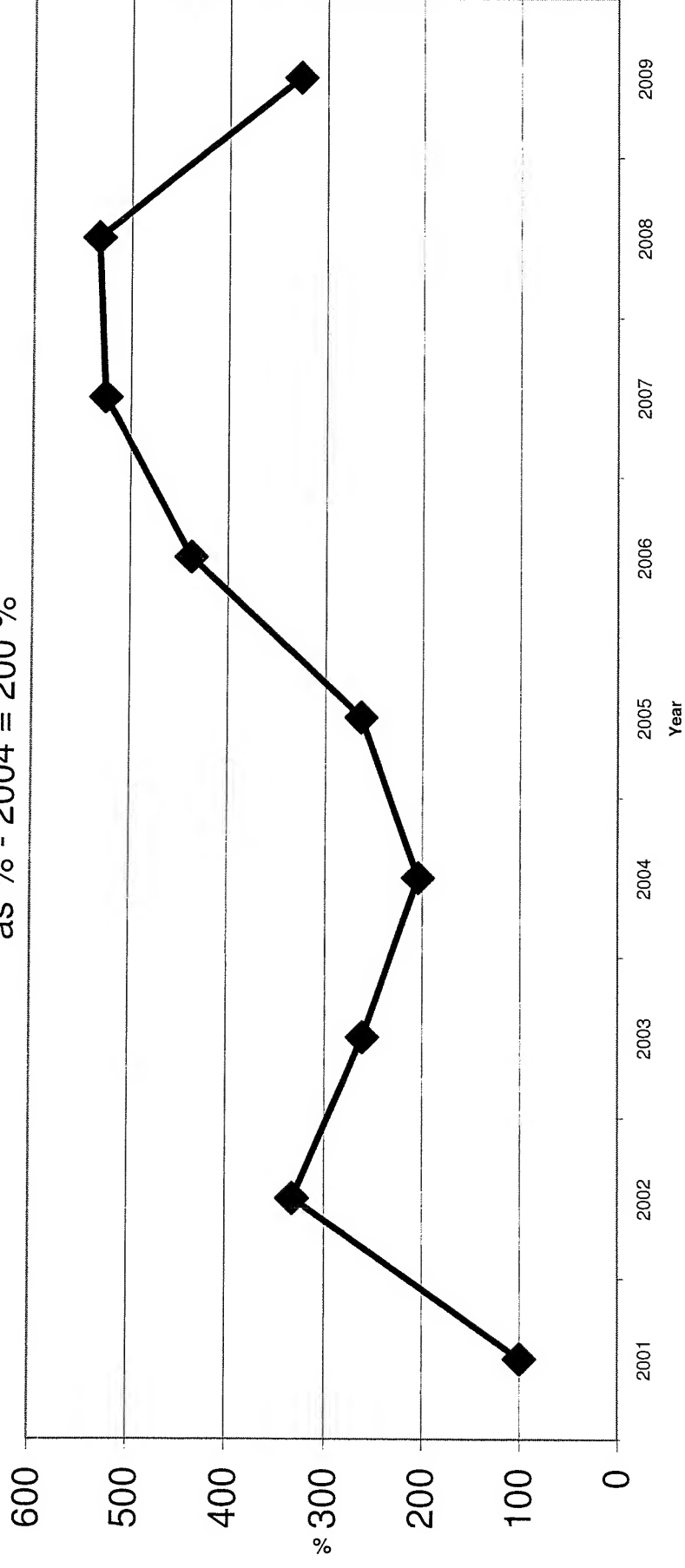
Education

03/1981 – 09/ 1986	Fachhochschule Aalen (Polytechnic) Graduation as Dipl. Engineer (FH) for Material Science and Plating Thesis: "Plating out of Salt Melts"
03/1984 – 09/1984	Practical semester at Daimler-Benz AG in Mannheim / Germany
09/1982 – 02/1983	Practical semester at Runne-Centrifuges in Heidelberg / Germany
08/1967 – 08/1977	High School, Helmholtz-Gymnasium Heidelberg / Germany 08/77 College Entrance Qualification (Polytechnic)
03/1964 – 07/1967	Elementary School Geschwister-Scholl School Heidelberg / Germany

EXHIBIT B

Sales - Uniplate 2001 - 2009

as % - 2004 = 200 %



M. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.